

An introduction to Robot Framework

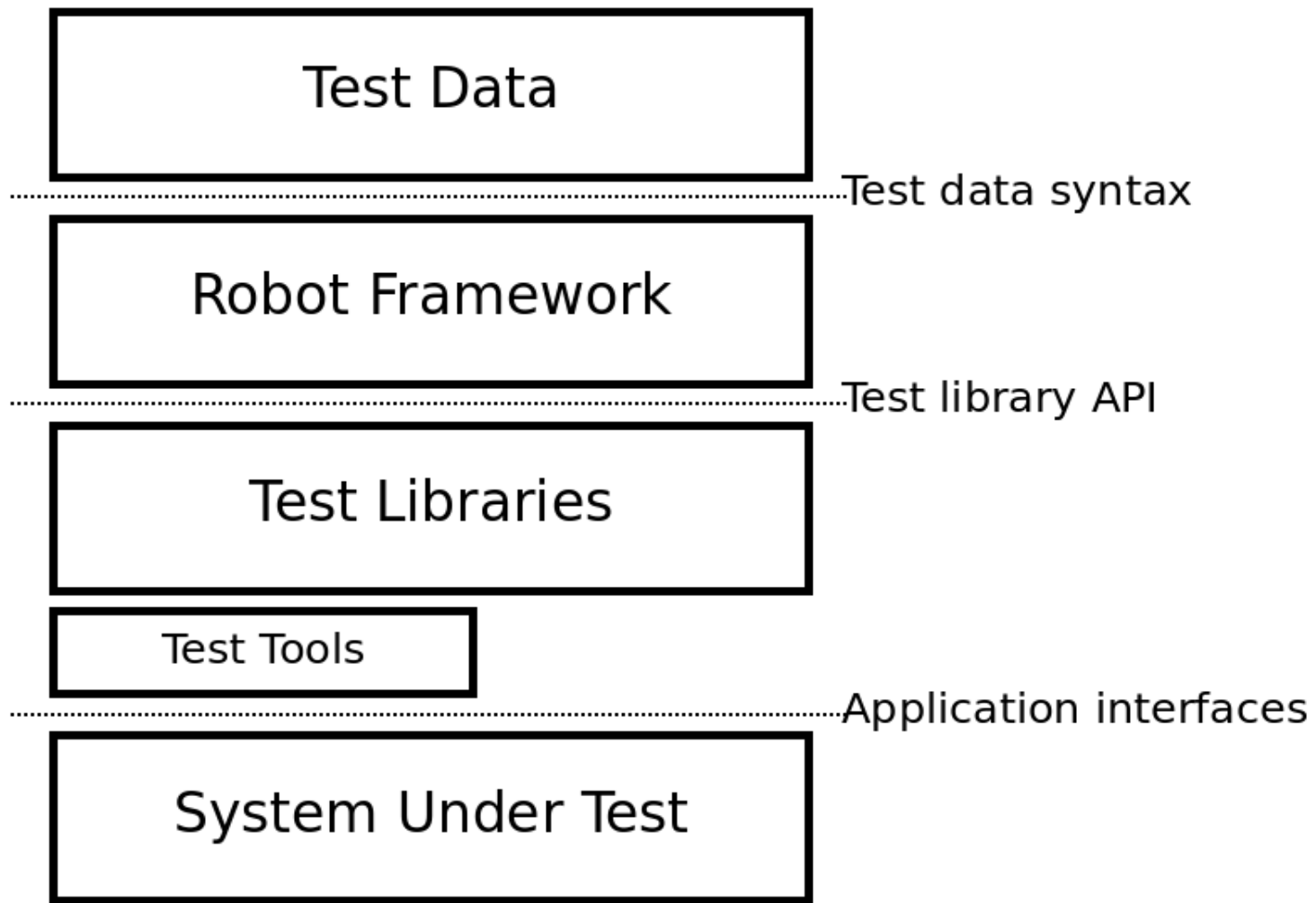
<http://robotframework.org>



Fast facts

- Generic test automation framework
 - Utilizes the keyword-driven testing approach
 - Suitable for both “normal” test automation and ATDD
- Implemented with Python
 - Runs also on Jython (JVM) and IronPython (.NET)
 - Can be extended natively using Python or Java
 - Other languages supported via a remote interface
- Open source
 - Apache 2.0 license
 - Sponsored by Nokia Siemens Networks
 - Active development and growing community

High level architecture



Simple tabular syntax

Test Case	Action	Argument	Argument
User can create an account and log in	Create Valid User	fred	P4ssw0rd
	Attempt to Login with Credentials	fred	P4ssw0rd
	Status Should Be	Logged In	
User cannot log in with bad password	Create Valid User	betty	P4ssw0rd
	Attempt to Login with Credentials	betty	wrong
	Status Should Be	Access Denied	

Data-driven test cases

Test Case	Action	Password	Expected error message
Too short password	Creating user with invalid password should fail	abCD5	\${PWD INVALID LENGTH}
Too long password	Creating user with invalid password should fail	abCD567890123	\${PWD INVALID LENGTH}
Password without lowercase letters	Creating user with invalid password should fail	123DEFG	\${PWD INVALID CONTENT}
Password without capital letters	Creating user with invalid password should fail	abcd56789	\${PWD INVALID CONTENT}
Password without numbers	Creating user with invalid password should fail	AbCdEfGh	\${PWD INVALID CONTENT}
Password with special characters	Creating user with invalid password should fail	abCD56+	\${PWD INVALID CONTENT}

Executable specifications

Test Case	Steps
User can change password	Given a user has a valid account
	when she changes her password
	then she can log in with the new password
	and she cannot use the old password anymore

Higher level keywords

Keyword	Action	Argument	Argument
Clear login database	Remove file	\${DATABASE FILE}	
Create valid user	[Arguments]	\${username}	\${password}
	Create user	\${username}	\${password}
	Status should be	SUCCESS	
Creating user with invalid password should fail	[Arguments]	\${password}	\${error}
	Create user	example	\${password}
	Status should be	Creating user failed: \${error}	
Login	[Arguments]	\${username}	\${password}
	Attempt to login with credentials	\${username}	\${password}
	Status should be	Logged In	

Straightforward test library API

```
import os
import sys

class LoginLibrary:

    def __init__(self):
        sut_path = os.path.join(os.path.dirname(os.path.abspath(__file__)),
                                '..', 'sut', 'login.py')
        self._command_prefix = "%s" %s " % (sys.executable, sut_path)
        self._status = ''

    def create_user(self, username, password):
        self._run_command('create', username, password)

    def change_password(self, username, old_pwd, new_pwd):
        self._run_command('change-password', username, old_pwd, new_pwd)

    def attempt_to_login_with_credentials(self, username, password):
        self._run_command('login', username, password)

    def status_should_be(self, expected_status):
        if expected_status != self._status:
            raise AssertionError("Expected status to be '%s' but was '%s'"
                                % (expected_status, self._status))

    def _run_command(self, command, *args):
        command = '%s %s %s' % (self._command_prefix, command, ' '.join(args))
        process = os.popen(command)
        self._status = process.read().strip()
        process.close()
```


Variables

Variable	Value
\${USERNAME}	janedoe
\${PASSWORD}	J4n3D0e
\${NEW PASSWORD}	e0D3n4J
\${DATABASE FILE}	\${TEMPDIR}\${/}robotframework-quickstart-db.txt
\${PWD INVALID LENGTH}	Password must be 7-12 characters long
\${PWD INVALID CONTENT}	Password must be a combination of lowercase and uppercase letters and numbers

From command line:

```
$ pybot --variable USERNAME:johndoe --variable PASSWORD:J0hnD0e my_tests.html
```

Tagging

- Free metadata to categorize test cases
- Statistics by tags collected automatically
- Select test cases to be executed
- Specify which test cases are considered critical

Clear reports

Login Tests Test Report

Generated
20080613 14:12:20 GMT +02:00
1 minute 0 seconds ago

Summary Information

Status: **6 critical tests failed**
Start Time: 20080613 14:12:08.445
End Time: 20080613 14:12:39.666
Elapsed Time: 00:00:31.221

Test Statistics

Total Statistics	Total	Pass	Fail
Critical Tests	10	4	6
All Tests	10	4	6

Statistics by Tag	Total	Pass	Fail
regression	10	4	6
smoke	4	4	0

Statistics by Suite	Total	Pass	Fail
Login Tests	10	4	6
I.Higher Level Login	3	3	0
I.Invalid Login	6	0	6
I.Simple Login	1	1	0

Test Details by Suite

Name	Documentation	Metadata / Tags	Crit.	Status
Login Tests			N/A	FAIL
I.Higher Level Login			N/A	PASS
I.h.Higher Level Valid Login		regression, smoke	yes	PASS
I.h.Even Higher Level Valid Login		regression, smoke	yes	PASS
I.h.Highest Level Login		regression, smoke	yes	PASS
I.Invalid Login			N/A	FAIL
I.i.Invalid Username		regression	yes	FAIL
I.i.Invalid Password		regression	yes	FAIL
I.i.Invalid Username				FAIL

Login Tests Test Report

Generated
20080613 13:39:08 GMT +02:00
1 minute 5 seconds ago

Summary Information

Status: **All tests passed**
Documentation: Demo test cases for Robot Framework using Selenium test library
Start Time: 20080613 13:38:36.191
End Time: 20080613 13:39:08.068
Elapsed Time: 00:00:31.877

Test Statistics

Total Statistics	Total	Pass	Fail	Graph
Critical Tests	10	10	0	
All Tests	10	10	0	

Statistics by Tag	Total	Pass	Fail	Graph
regression	10	10	0	
smoke	4	4	0	

Statistics by Suite	Total	Pass	Fail	Graph
Login Tests	10	10	0	
I.Higher Level Login	3	3	0	
I.Invalid Login	6	6	0	
I.Simple Login	1	1	0	

Test Details by Suite

Name	Documentation	Metadata / Tags	Crit.	Status	Message	Start / Elapsed
Login Tests	Demo test cases for Robot Framework using Selenium test library		N/A	PASS	10 critical tests, 10 passed, 0 failed 10 tests total, 10 passed, 0 failed	20080613 13:38:36 00:00:32
I.Higher Level Login			N/A	PASS	3 critical tests, 3 passed, 0 failed 3 tests total, 3 passed, 0 failed	20080613 13:38:36 00:00:17
I.h.Higher Level Valid Login		regression, smoke	yes	PASS		20080613 13:38:36 00:00:06
I.h.Even Higher Level Valid Login		regression, smoke	yes	PASS		20080613 13:38:41 00:00:05
I.h.Highest Level Login		regression, smoke	yes	PASS		20080613 13:38:47 00:00:06
I.Invalid Login			N/A	PASS	6 critical tests, 6 passed, 0 failed 6 tests total, 6 passed, 0 failed	20080613 13:38:52 00:00:10
I.i.Invalid Username		regression	yes	PASS		20080613 13:38:57 00:00:01
I.i.Invalid Password		regression	yes	PASS		20080613 13:38:58 00:00:01
I.i.Invalid Username		regression	yes	PASS		20080613 13:38:59

Detailed logs

[-] TEST SUITE: Higher Level Login

[Expand All](#)

Full Name: Login Tests.Higher Level Login
Source: /home/jth/workspace/seleniumlib/demo/login_tests/higher_level_login.html
Start / End / Elapsed: 20090415 07:36:29.500 / 20090415 07:36:55.480 / 00:00:25.980
Overall Status: **FAIL**
Message: 3 critical tests, 0 passed, 3 failed
3 tests total, 0 passed, 3 failed

[-] TEST CASE: Higher Level Valid Login

[Expand All](#)

Full Name: Login Tests.Higher Level Login.Higher Level Valid Login
Tags: regression, smoke
Start / End / Elapsed: 20090415 07:36:29.533 / 20090415 07:36:36.412 / 00:00:06.879
Status: **FAIL (critical)**
Message: Location should have been '<http://localhost:7272/welcome.html>' but was '<http://localhost:7272/error.html>'

[+] **SETUP: resource.Open Login Page**

[+] **KEYWORD: resource.Input Username** demo

[+] **KEYWORD: resource.Input Password** mode

[+] **KEYWORD: resource.Click Login Button**

[-] **KEYWORD: resource.Welcome Page Should Be Open**

Start / End / Elapsed: 20090415 07:36:36.340 / 20090415 07:36:36.374 / 00:00:00.034

[-] **KEYWORD: SeleniumLibrary.Location Should Be** \${WELCOME URL}

Documentation: Verifies that current URL is exactly `url`.

Start / End / Elapsed: 20090415 07:36:36.341 / 20090415 07:36:36.374 / 00:00:00.033

07:36:36.373 INFO Verifying current location is '<http://localhost:7272/welcome.html>'.

07:36:36.374 **FAIL** Location should have been '<http://localhost:7272/welcome.html>' but was '<http://localhost:7272/error.html>'

[+] **TEARDOWN: SeleniumLibrary.Close Browser**

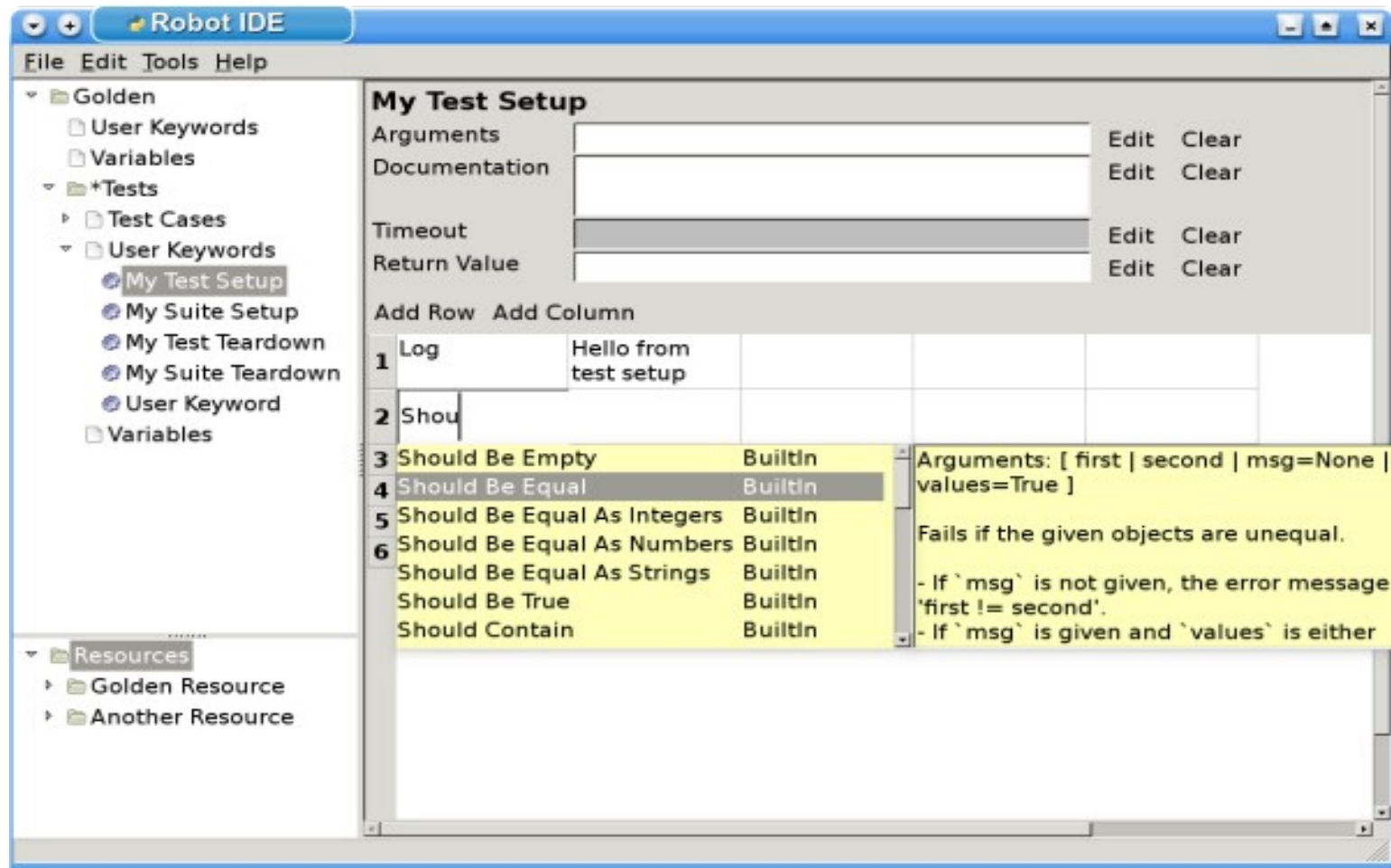
Easy integration

- Test suites are created from files and directories
 - Trivial to store into any version control system
- Simple command line interface
 - Easy to start test execution from CI systems or other tools
- Output also in XML format
 - All information in machine readable format
 - Outputs from different test runs can be combined
- Plugins for common CI and build tools
 - Jenkins/Hudson, Ant, Maven

Different test libraries

- Standard libraries
 - Included in normal installation
 - OperatingSystem, Telnet, Screenshot, String, ...
- External libraries
 - Must be installed separately
 - SeleniumLibrary, SwingLibrary, DatabaseLibrary, AutoltLibrary, SSHLibrary, HTTPLibrary, ...
- Project and team specific libraries

Separate test data editor (RIDE)



For more information

- Project pages
 - The main information hub
 - <http://robotframework.org>
- Quick Start Guide
 - Executable guide demonstrating the key features
 - <http://code.google.com/p/robotframework/wiki/QuickStartGuide>
- User Guide
 - Detailed information about all features of the framework
 - <http://code.google.com/p/robotframework/wiki/UserGuide>
- SeleniumLibrary demo
 - Demonstrates web testing with Robot Framework
 - <http://code.google.com/p/robotframework-seleniumlibrary>